

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 41 and 49-63 are pending in the application, with claim 41 being the independent claim. Of these pending claims, claims 49, 51-55, 58, 60, and 63 have been withdrawn pursuant to the species election of the elected peptide fused to a linker. Claims 41, 49-52, 55, 61 and 63 have been amended, and claims 42-48 have been cancelled by the present communication. Accordingly, claims 41, 50, 56, 57, 59, 61 and 62 are presently under consideration. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 103

Claims 41, 42, 46, 50, 56, 57, 59, 61, and 62 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Boon (U.S. Patent No. 5,342,774; hereinafter referred to as "Boon") in view of Rotzschke *et al.* (Immunol. Today; hereinafter referred to as "Rotzschke *et al.*") and Rammensee *et al.* (WO 92/21033; hereinafter referred to as "Rammensee *et al.*") as evidenced by Rammensee *et al.* (U.S. Patent No. 5,747,269). Applicants respectfully traverse the rejection.

The Examiner bears the burden of establishing a *prima facie* case of obviousness based upon the cited art. *See In re Piasecki*, 223 USPQ 785, 787-88 (Fed. Cir. 1984). To accomplish this, the Examiner must provide both a suggestion or motivation to

combine the art and a reasonable expectation of obtaining the claimed invention based upon that combination of art. *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicants respectfully assert that the Examiner has provided neither the motivation to combine the art nor a reasonable expectation of obtaining the claimed invention based upon the combination.

The primary reference, Boon, merely discloses the full-length sequence of MAGE 3. As acknowledged by the Examiner, Boon does not teach the peptide of the claimed invention (see Office Action mailed 08/10/04, at page 5, line 3).

The deficiencies of the primary reference are not cured by Rammensee *et al.*, because Rammensee *et al.* does not teach the peptide of the claimed invention. Applicants respectfully submit that one of skill in the art relying on the teachings of Rammensee *et al.*, even if in combination with Boon, would not have had any reasonable expectation of success identifying the claimed invention.

Initially, Applicants respectfully assert that the Examiner has mischaracterized Rammensee *et al.* Applicants respectfully disagree with the Examiner's assertion that "Rammensee *et al.* disclose that using a **motif screening system** that the identity of a tumor cell peptide reactive with CTL can be determined" (emphasis added, see Office Action mailed 08/10/04, at page 5, lines 4-5). Contrary to the Examiner's assertion, Rammensee *et al.* actually disclose a method of identifying peptides bound to MHC molecules using a sequencing step. In brief, the method taught Rammensee *et al.* involves the isolation of intact molecules bound to major histocompatibility complex (MHC) molecules, separating the peptides from the MHC complexes, and sequencing the separated peptides, as claimed therein.

Applicants respectfully submit that the Examiner's assertion that Rammensee *et al.* disclose a "motif screening system" is incorrect. Instead, "the allele-specific peptide motif is derived from the information obtained, in particular from the sequencing of a mixture or from the sequencing of a number of individual peptides" (see Rammensee *et al.*, at column 1, lines 37-53). Thus, the "motif" referred to by Rammensee *et al.* is actually just a representation of the occurrence of a sequenced amino acid residue at a particular position, *i.e.*, the actual sequenced **epitopes** bound to the MHC molecules. In fact, Rammensee *et al.* uses the terms "motifs" and "epitopes" interchangeably (see Rammensee *et al.*, at column 1, lines 5-6). In contrast, Applicants use the term motif as a *predictive* pattern of residues. Therefore, Rammensee *et al.* only teaches the retrospective identification of an epitope, as opposed to Applicants' use of motifs for an initial prediction of previously unidentified epitope.

Furthermore, Applicants respectfully submit that Rammensee *et al.*, even if used as a predictive motif as suggested by the Examiner (eventhough not taught by the reference as noted above), teaches away from the claimed invention. In further attempts to support this rejection, the Examiner notes that "Rammensee *et al.* disclose that HLA 0205 molecule binds a 9mer peptide with an anchor residue of L at position 9 (see Table 5); and that "the claimed peptide has a L amino acid at position 9" (see Office Action mailed 08/10/04, at page 5, lines 6-7). The assignment of one position in a 9-mer peptide can hardly be considered a successful predictive use of the "motif" disclosed by Rammensee *et al.* Using that rational, if one were to examine any protein sequence, one could potentially identify thousands of 9-mer peptides that contain an L at position 9.

Further, Applicants point out that in addition to showing an L anchor residue at position 9, Table 5 also shows that position 3 is a Y, P, F, or I, while the claimed peptide

has an **A** at this position; position 7 is a **Q**, while the claimed peptide has an **H** at this position; and position 8 of the peptide contains a **K**, while the claimed peptide has a **F** at this position. Thus, one would never arrive at the claimed invention using the “motif” of Rammensee *et al.*, because the reference actually teaches away from the claimed invention. A prior art reference must be considered in its entirety, including portions that would lead away from the claimed invention. *W.L. Gore Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983).

The Examiner asserts that Rotzschke *et al.* disclose that peptide motifs can be used to scan protein sequences to identify T cell epitopes (Office Action mailed 08/10/04, at page 5, lines 12-13). For the reasons discussed above, Rammensee *et al.* does not disclose any such “motif”, therefore one of skill in the art would not be motivated to combine the teachings of Rotzschke *et al.* with Rammensee *et al.*

Moreover, as demonstrated above, one would have no success in obtaining the claimed invention even if these references were combined. Applicants’ invention is the result of multiple selection criteria, of which motif identification is just one step (see specification, for example, at page 76-77). The claimed invention also relies on studies of peptide binding (see specification, for example, at page 168) and immunogenicity (see specification, for example, at page 172). Thus, the claimed invention cannot be obvious based on either of these references, either taken individually or in combination.

Since Rammensee *et al.* does not disclose a “motif” suitable for recognition of the claimed invention, Applicants respectfully assert that the combination of Rammensee *et al.* and Boon does not teach the peptide of the claimed invention. In fact, if one were to extend the Examiner’s logic of using Rammensee *et al.* with Boon to render the claimed peptide obvious, it would follow that Rammensee *et al.* could be combined with

any reference that discloses a protein and that combination of references would render *any* 9-mer peptide that could be derived from any protein obvious. Clearly, such an all encompassing obviousness standard is impermissible.

Applicants respectfully assert that the Examiner has not created a *prima facie* case of obviousness because there is no motivation to combine the references and there is no reasonable expectation that one could identify the peptide of the claimed invention using the references that the Examiner has suggested. Therefore, Applicants respectfully request that the rejection be withdrawn.

Other Matters

Claims 41, 42, 46, 50, 56, 57, 59, 61, and 62 were rejected under the judicially created doctrine of obviousness-type double patenting as allegedly unpatentable over claims 1-11 of U.S. Patent No. 6,602,510. Applicants respectfully traverse this rejection, but request that the rejection be held in abeyance until such time that the pending claims are found allowable.

Claims 41, 42, 46, 50, 56, 57, 59, 61, and 62 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-31 and 35-39 of copending Appl. No. 10/149,915.

According to § 804(I)(B) of the Manual of Patent Examining Procedure (M.P.E.P.), when provisional double patenting issues are raised in copending applications, "[i]f the 'provisional' double patenting rejections in both applications are the only rejections remaining in those applications, the examiner should then withdraw that rejection in one of the applications (e.g., the application with the earlier filing date) and permit the application to issue as a patent. The examiner should maintain the double

patenting rejection in the other application as a 'provisional' double patenting rejection which will be converted into a double patenting rejection when the one application issues as a patent."

Applicants will appropriately address the double patenting rejection in the event it is converted to an actual double patenting rejection pursuant to MPEP § 804(I)(B).

The Examiner has requested a new oath or declaration. Applicants respectfully request that the request be held in abeyance until such time that the pending claims are found allowable.

Claim 41 is generic. If claim 41 is found to be allowable following reconsideration of the application in light of the present communication, Applicants respectfully request that the withdrawal of claims directed to additional species (*i.e.*, claims 49, 51-55, 58, 60 and 63) be removed in accordance with 37 C.F.R. § 1.141(a).

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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